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United States Department of Agriculture  
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X A MOTORIZED ASPIRATOR

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A small motorized aspirator, was assembled at the Lafayette, Ind., field station for the purpose of collecting live hessian fly adults. It was found equally useful in picking up, counting, or assorting chinch bugs or other small insects in the field, greenhouse, or laboratory.

The equipment, shown in figure 1, consists of a motor-driven centrifugal fan and casing, storage battery or transformer, aspirator, and connections.

The unit consisting of fan, motor, and casing (fig. 2) was taken from an automobile heater. It is composed of a forward-curve or squirrel-cage fan with 28 blades, a 6-volt universal motor, and a scroll casing. It has been determined experimentally, however, that plate fans with four or eight blades and other small DC or AC motors may be used. These units may be purchased new for \$5 to \$10, or may be picked up second-hand for less.

A 6-volt battery furnishes sufficient power for a short period when the equipment is used in the field. The battery of an automobile may be used when a portable outfit is needed, or a heavy-duty battery of dry cells may be substituted. A 115-volt AC 50-watt step-down transformer with the secondary side provided with outlets permitting a range of 6 to 15 volts is preferable for use in the greenhouse or laboratory. The use of the transformer eliminates the expense of battery upkeep. By selecting the voltage, the best motor speed and fan suction for picking up different species of insects can also be obtained. An ordinary small doorbell transformer cannot be used on account of its low current capacity.

A vial-type aspirator (fig. 1) is connected to the fan casing by means of a small metal funnel and a short length of rubber tubing. Other aspirators used by entomologists may be substituted by modifying the funnel and its connections.

The equipment has the advantages of small size, light weight, and freedom from excessive noises.

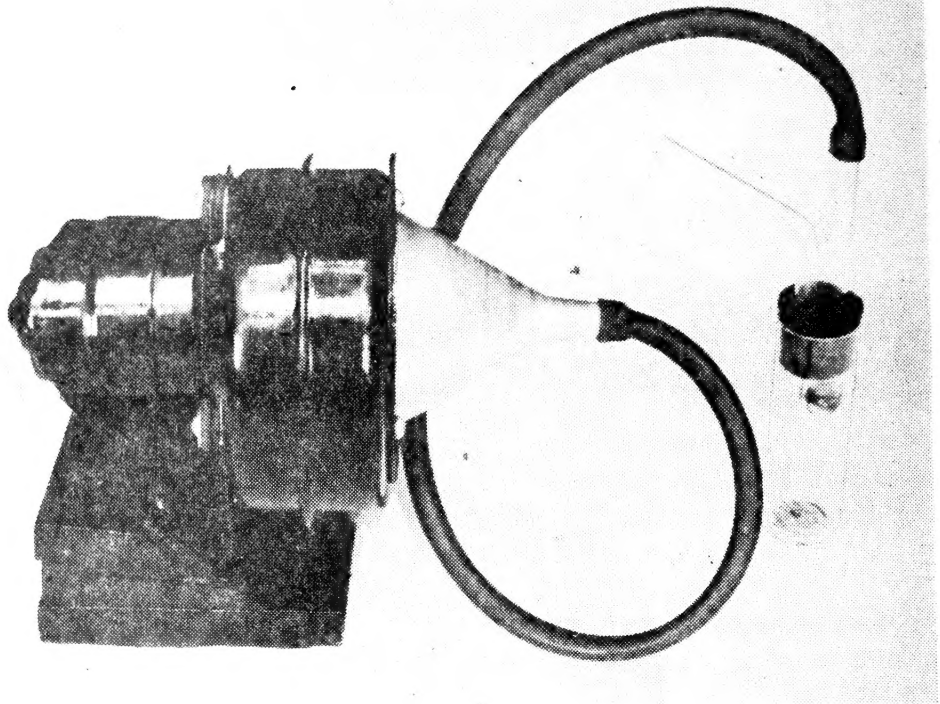


Figure 1.--Motorized aspirator assembly without battery or transformer shown.

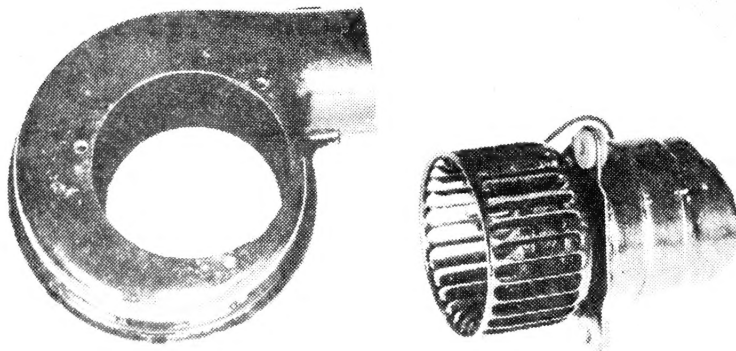


Figure 2.--Fan, motor, and casing unit of the equipment.